Quick Test To Determine Wheat Color Class

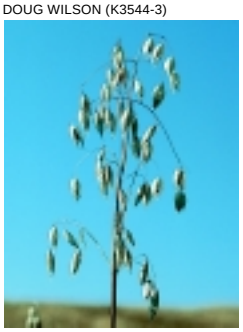
Even though baking and milling characteristics of hard red and white wheat varieties differ markedly, the two types are difficult to distinguish visually. Wet weather and other environmental factors can add to this difficulty. So grain elevator operators should welcome a test that uses a dilute sodium hydroxide solution to accentuate color differences of wheat seeds. It takes just 10 minutes to correctly determine a wheat sample's class with this test—and it costs just pennies to run. Its use should help make grain marketers better able to ensure that Asian purchasers receive the white wheats needed for making yellow noodles and that domestic bakers get the red wheats typically used for baking breads.

While the idea for this testing method isn't new, research was needed to standardize the procedure to make it a reliable indicator. The project was funded by the Kansas Wheat Commission and administered through the Grain Industry Alliance. The test kits cost about $100 and contain enough sodium hydroxide to last through harvest. They are available from Perten Instruments or from the Kansas Grain and Feed Association, Topeka, Kansas. *Floyd Dowell, USDA-ARS Grain Marketing and Production Research Center, Manhattan, Kansas; phone (785) 776-2753, e-mail fdowell@usgmrl.ksu.edu.*

Oat Oil for Healthier Bread

Just a smidgen of oat oil could one day replace vegetable shortening and other additives used by bakers to increase loaf size, improve texture, and lengthen the shelf life of bread. This natural oil is rich in phosopholipids and glycolipids, which are also called polar lipids. It combines with water to lubricate bread dough to help it rise evenly and bake into a loaf that's uniformly soft and springy—even after several days of storage. Bread made with oat oil or its components

DOUG WILSON (K3544-3)



Oats yield an oil that may make a heart-healthy bread.

could become an alternative dietary staple for people who would rather avoid vegetable shortenings, which contain trans fatty acids associated with heart disease.

The most highly valued major component of oats is presently the bran. Although oat oil makes up about 6 percent of most dehulled oats, it is rarely sold commercially. So its use as a baking ingredient could one day create a new market for oats. *Douglas C. Doehlert, USDA-ARS Red River Valley Agricultural Research Center, Fargo, North Dakota; phone (701) 239-1413, e-mail doehlertd@fargo.ars.usda.gov.*

Poultry Manure + Industrial Wastes = Better Fertilizer

What do you get if you add wastes from water-treatment plants and industrial plants to poultry litter consisting of manure and sawdust? A safer fertilizer—that's what.

Alum in the water-treatment residues and iron in certain industrial residues strongly bind with phosophorus in the manure. This reduces water-soluble phosphorus concentrations, making them much less likely to wash into waterways. And the water-treatment residues also contain liming materials that can make soil less acidic. Poultry manure treated with these byproducts can improve poor soil inexpensively and help farmers continue to use poultry litter as fertilizer.

Reducing phosphorus in waterways may reduce outbreaks of the microbe *Pfiesteria piscidida* in tributaries of Maryland's Chesapeake Bay and other coastal waters where outbreaks occur. Farmers with soil measured at the highest levels of water-soluble phosphorus will eventually be prohibited from applying poultry litter or other phosphorous fertilizer until levels subside.

The findings have been published in the *Journal of Environmental Quality.* Testing of the litter-byproduct mixtures will next be done in corn and soybean fields on the long-established poultry farms on the Chesapeake watershed that are being studied. *Eton E. Codling, USDA-ARS Environmental Quality Laboratory, Beltsville, Maryland; phone (301) 504-5708, e-mail codlinge@ba.ars.usda.gov*

Arabidopsis—An Even More Reliable Plant Model

Scientists recently announced not only the first complete sequence of a plant genome, but also a computational analysis for the flowering wild plant *Arabidopsis thaliana*. These accomplishments should make this diminutive plant a more reliable genetic model for other plant species. It's the big payoff of the finding. This will allow researchers to compare genes across widely divergent crop species—such as grasses (rice and other grains) and broad-leaved plants (soybeans, fruits, and vegetables). *Arabidopsis* was chosen because it has one of the smallest—and seemingly one of the simplest—genomes among flowering plants.

However, applying some novel computations to the *Arabidopsis* genome showed its ancestry to be more complex than suspected. Scientists found that it had duplicated at least four times—about 100 to 200 million years ago, before the time when many of our broad-leaved crop plants began to diverge from *Arabidopsis'* distant ancestor. Duplications add to the difficulty of locating related chromosome sections in other plants because the genome gets shuffled—like a deck of cards—naturally, over millions of years of evolution. *Todd J. Vision, USDA-ARS Center for Agricultural Bioinformatics, Ithaca, New York; phone (607) 254-5353, e-mail tv23@cornell.edu.*